

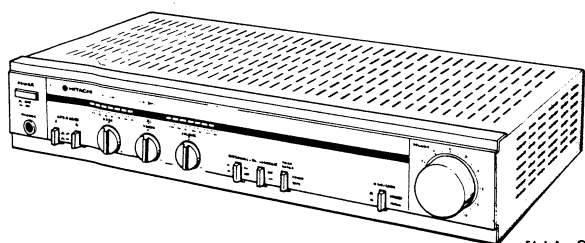
HITACHI

SERVICE MANUAL

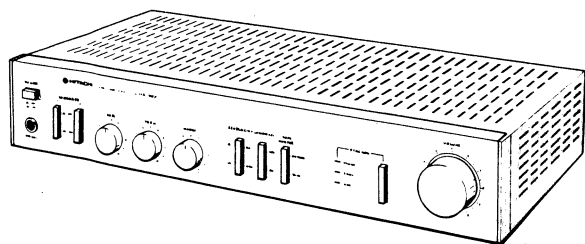
TY

No. 263 EGF

HA-2800
HA-1800



[HA-2800]



[HA-1800]

CONTENTS

SPECIFICATIONS.....	1
FEATURES.....	3
DESCRIPTION OF THE NEW CIRCUIT.....	3
BLOCK DIAGRAM.....	4
PRINTED WIRING BOARD	5
CIRCUIT DIAGRAM	6
RPINTED WIRING BOARD	7
CIRCUIT DIAGRAM	8
DISASSEMBLY AND REPLACEMENT.....	9
REPLACEMENT PARTS LIST.....	10,11,12,13
FRONT AND REAR PANEL	14

SAFETY PRECAUTION

The following precautions should be observed when servicing.

1. Since many parts in the unit have special safety related characteristics, always use genuine Hitachi's replacement parts. Especially critical parts in the power circuit block should not be replaced with other makers. Critical parts are marked with Δ in the schematic diagram and circuit board diagram.
2. Before returning a repaired unit to the customer, the service technician must thoroughly test the unit to ascertain that it is completely safe to operate without danger of electrical shock.

SPECIFICATIONS

Power output (Both channels driven)	25 watts* per channel, min. RMS, at 8 ohms from 40 Hz to 20 kHz, with no more than 0.1% total harmonic distortion.	Output level TAPE REC OUT Phono overload level (at 1 kHz)	150 mV 120 mV
	25 W/ch + 25 W/ch (4/8 ohms, 1 kHz, T.H.D., 0.1%)	Signal-to-noise ratio (IHF, A network)	72 dB
Power bandwidth	10 Hz — 30 kHz (8 ohms, T.H.D. 0.1% 1/2 Rated)	PHONO TUNER, AUX (HA-1800), TAPE	93 dB
Frequency characteristics TUNER, AUX (HA-1800), TAPE PHONO	20 Hz — 40 kHz (+1.0 — 3.0 dB) RIAA $\pm$ 0.5 dB	Damping factor	20 (1 kHz, 8 ohms)
Harmonic distortion (8 ohms) (at rated output) (at 1/2 rated output)	Less than 0.1% Less than 0.1%	Bass control	$\pm$ 8 dB (100 Hz)
Intermodulation distortion (at 1/2 rated output)	Less than 0.1%	Treble control	$\pm$ 8 dB (10 kHz)
Input sensitivity/Impedance PHONO TUNER, AUX (HA-1800) TAPE PLAY	2.5 mV/47 k-ohms 150 mV/40 k-ohms 150 mV/40 k-ohms	Loudness control	+ 6 dB (100 Hz) + 4 dB (10 kHz)
		Subsonic filter	20 Hz
		Power supply	AC 120 V 60 Hz, $\sim$ 220 V 50/60 Hz, $\sim$ 240 V 50/60 Hz or $\sim$ 120 V/220 V/240 V 50/60 Hz
		Power consumption	90 W (at 1/10 rated output) 140 W (at 1/3 rated output) 210 W (at rated output)
		Dimensions	435 (W) x 83 (H) x 243 (D) mm
		Weight	4.8 kg (HA-2800) 4.6 kg (HA-1800)

*Measured pursuant to the Federal Trade Commission's Trade Regulation Rule on Power Output Claims for Amplifiers.

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT.

STEREO AMPLIFIER

May 1981

TOYOKAWA WORKS

SICHERHEITSMASSNAHMEN

Bei Wartungsarbeiten sind die folgenden Sicherheitsmaßnahmen zu beachten:

1. Da verschiedene Teile dieses Gerätes Sicherheitsfunktionen aufweisen, nur Original-Hitachi-Ersatzteile verwenden. Kritische Teile im Netzteil sollten nicht durch ähnliche Teile anderer Hersteller ersetzt werden. Alle kritischen Teile sind im Schaltplan und im Diagramm der Schaltplatinen mit dem Symbol Δ gekennzeichnet.
2. Vor der Auslieferung eines reparierten Gerätes an den Kunden muß der Wartungstechniker das Gerät einer gründlichen Prüfung unterziehen, um sicherzustellen, daß sicherer Betrieb ohne die Gefahr von elektrischen Schlägen gewährleistet ist.

TECHNISCHE DATEN

Ausgangsleistung	25 Watt/Kanal + 25 Watt/Kanal (beide Kanäle ausgesteuert an 8 Ohm, 40 Hz – 20 kHz, T.H.D. 0,1%)	Ausgangspegel	150 mV
DIN 4/8 Ohm	25 Watt/Kanal + 25 Watt/Kanal (an 4/8 Ohm, 1 kHz, T.H.D., 0,1%)	Phonoüberlastungspegel (bei 1 kHz)	120 mV
Leistungsbandbreite	10 Hz – 30 kHz (an 8 Ohm, Klirrfaktor 0,1%, halbe Nennleistung)	Geräuschspannungsabstand (IHF, A-Nets) PHONO	72 dB
Frequenzcharakteristik		TUNER, AUX, (HA-1800) TAPE	93 dB
TUNER, AUX (HA-1800), TAPE PHONO	20 Hz – 40 kHz (+1,0 – 3,0 dB) RIAA-Kennlinie $\pm 0,5$ dB	Dämpfungsfaktor	20 (1 kHz, 8 Ohm)
Klirrfaktor (8 Ohm) (bei Nennleistung)	Kleiner als 0,1%	Tiefeneinstellung	± 8 dB (100 Hz)
(bei halber Nennleistung)	Kleiner als 0,1%	Höheneinstellung	± 8 dB (10 kHz)
Intermodulations-Verzerrung (bei halber Nennleistung)	Kleiner als 0,1%	Gehörrichtige Lautstärkekorrektur	+ 6 dB (100 Hz) + 4 dB (10 kHz)
Eingangsempfindlichkeit/Impedanz		Subsonicfilter-Schalter	20 Hz
PHONO	2,5 mV/47 kOhm	Netzspannung	Wechselstrom 120 V 60 Hz, ~ 220 V 50/60 Hz, ~ 240 V 50/60 Hz oder ~ 120 V/220 V/240 V 50/60 Hz
TUNER, AUX (HA-1800)	150 mV/40 kOhm	Leistungsaufnahme	90 W (bei 1/10 Nennleistung) 140 W (bei 1/3 Nennleistung) 210 W (bei Nennleistung)
TAPE PLAY	150 mV/40 kOhm	Abmessungen	435 (B) x 83 (H) x 243 (T) mm
		Gewicht	4,8 kg (HA-2800) 4,6 kg (HA-1800)
		Änderungen der Konstruktion und technischen Daten bleiben im Sinne der ständigen Verbesserung vorbehalten.	

PRÉCAUTIONS DE SÉCURITÉ

Les précautions suivantes doivent être observées chaque fois qu'une réparation doit être faite.

1. Etant donné que de nombreux composants de l'appareil possèdent des caractéristiques relatives à la sécurité, utiliser uniquement des pièces de rechange d'origine Hitachi pour effectuer un remplacement. Ceci se rapporte notamment aux pièces critiques du bloc d'alimentation qui ne doivent en aucun cas être remplacées par celles d'autres fabricants. Les pièces critiques sont accompagnés du symbole Δ dans le schéma de montage et sur le schéma de plaque de câblage.
2. Avant de retourner l'appareil réparé au client, le technicien doit procéder à un essai complet pour s'assurer qu'il ne présente aucun danger de chocs électriques.

CARACTERISTIQUES TECHNIQUES

Puissance de sortie	25 W/can. + 25 W/can. (deux canaux en fonction sous 8 ohms, 40 – 20 000 Hz, D.H.T. 0,1%)	Niveau de sortie	150 mV
	25 W/can. + 25 W/can. (4/8 ohms, 1 kHz, D.H.T., 0,1%)	Niveau de surcharge phono (à 1 kHz)	120 mV
Bande passante	10 Hz – 30 kHz (8 ohms, D.H.T., 0,1%, 1/2 de la puissance nominale)	Rapport signal/bruit (IHF, réseau A) PHONO	72 dB
Caractéristiques de fréquence		TUNER, AUX, (HA-1800) TAPE	93 dB
TUNER, AUX (HA-1800), TAPE PHONO	20 Hz – 40 kHz (+1,0 – 3,0 dB) RIAA $\pm 0,5$ dB	Facteur d'amortissement	20 (1 kHz, 8 ohms)
Distorsion harmonique (8 ohms) (à la puissance nominale)	Inférieure à 0,1%	Réglage de graves	± 8 dB (100 Hz)
(à la moitié de la puissance nominale)	Inférieure à 0,1%	Réglage des aigus	± 8 dB (10 kHz)
Distorsion d'intermodulation (à la moitié de la puissance nominale)	Inférieure à 0,1%	Correction physiologique	+ 6 dB (100 Hz) + 4 dB (10 kHz)
Sensibilité d'entrée/Impédance		Filtre subsonique	20 Hz
PHONO	2,5 mV/47 k-ohms	Alimentation	CA 120 V 60 Hz, ~ 220 V 50/60 Hz, ~ 240 V 50/60 Hz ou ~ 120 V/220 V/240 V 50/60 Hz
TUNER, AUX (HA-1800)	150 mV/40 k-ohms	Consommation	90 W (à 1/10 de la puissance nominale) 140 W (à 1/3 de la puissance nominale) 210 W (à la puissance nominale)
TAPE PLAY	150 mV/40 k-ohms	Dimensions	435 (L) x 83 (H) x 243 (P) mm
		Poids	4,8 kg (HA-2800) 4,6 kg (HA-1800)

Les caractéristiques techniques et la présentation peuvent être modifiées sans préavis pour des raisons d'amélioration.

FEATURES

1. Low-distortion power amplifier
2. 14-LEDs power indication (HA-2800)
3. LED Function indicator (HA-1800)
4. Connection facilities for two pairs of speakers
5. New ICs in the Equalizer
6. Subsonic filter that cuts out rumble and wow in the ultralow frequencies without impairing the sound quality
7. Sleek and chic design

MERKMALE

1. Verzerrungsarmer Leistungsverstärker
2. 14-LED-Leistungskontrollen (HA-2800)
3. LED Funktionsmesser (HA-1800)
4. Anschlußeinrichtungen für zwei Lautsprecherpaare
5. Neue integrierte Schaltkreise (ICs) im Phono-Entzerrer
6. Subsonic-Filter unterdrückt Rumpeln und Jaulen in den extrem niedrigen Frequenzen, ohne die Klangqualität zu beeinträchtigen
7. Schnittiges, modernes Design

CARACTERISTIQUES

1. Amplificateur de puissance à faible distorsion
2. Indication de puissance par 14 diodes (HA-2800)
3. Indication de fonction de diodes (HA-1800)
4. Possibilité de raccordement de deux paires d'enceintes
5. De nouveaux circuits intégrés dans le correcteur
6. Un filtre subsonique qui permet de supprimer le rumble et le pleurage dans les très basses fréquences sans réduire la qualité du son
7. Construction élégante et mince

DESCRIPTION OF THE NEW CIRCUIT.
HINWEIS FÜR DEN ERSATZTEIL AUSTAUSCH.
REMARQUES CONCERNANT LE REMPLACEMENT DES PIECES

HA-2800

LED power meter drive circuit

7 LEDs per channel are used to indicate output level. These LEDs are driven by meter circuit; the relationship between the output level and the number of LEDs lit when 8Ω speakers are connected is as shown in Fig. 1.

Treiberkreis für LED-Leistungsmesser
Der Ausgangspegel wird mit Hilfe von fünf LEDs pro Kanal angezeigt. Diese Leuchtdioden werden über den Instrumentenschaltkreis angesteuert. Der Zusammenhang zwischen dem Ausgangspegel und der Anzahl der eingeschalteten LEDs bei Verwendung von 8 Ohm Lautsprechern ist in Abb.1 dargestellt.

Circuit d'excitation d'indicateur de puissance à diodes électroluminescentes
Use rampe de 7 diodes électroluminescentes est utilisée pour que le niveau de sortie soit précisément indiqué. Ces diodes électroluminescentes sont excitées par un circuit conçu à cet effet; le rapport qui existe entre le niveau de sortie et le nombre de diodes électroluminescentes allumées quand des haut-parleurs à impédance de 8 ohms est représenté sur la figure 1.

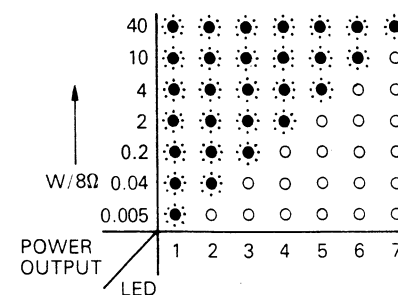
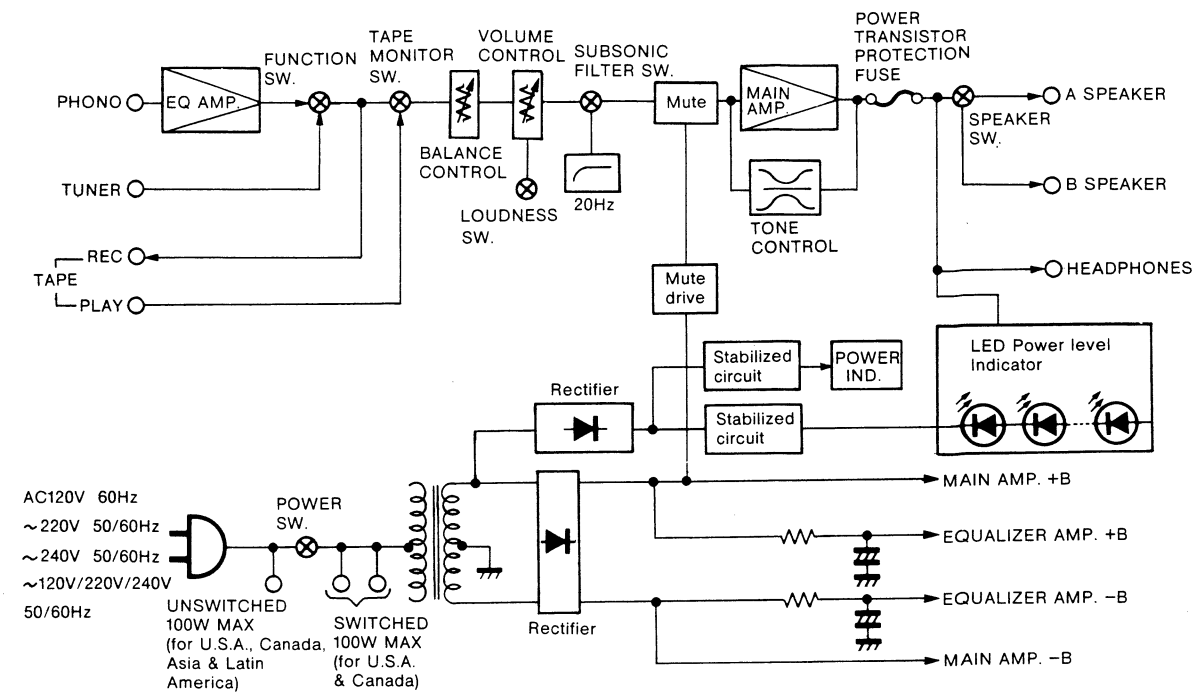


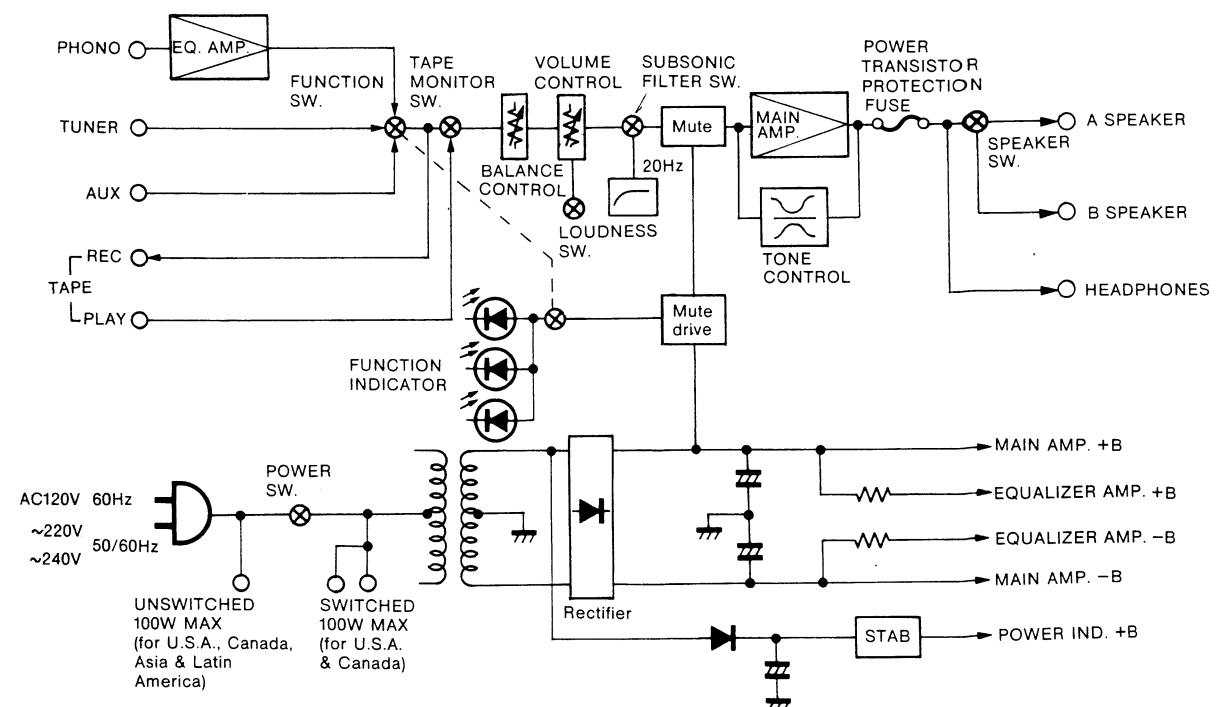
Fig. 1.
Abb.1

BLOCK DIAGRAM·BLOCK SCHEMA·SCHMA

HA-2800



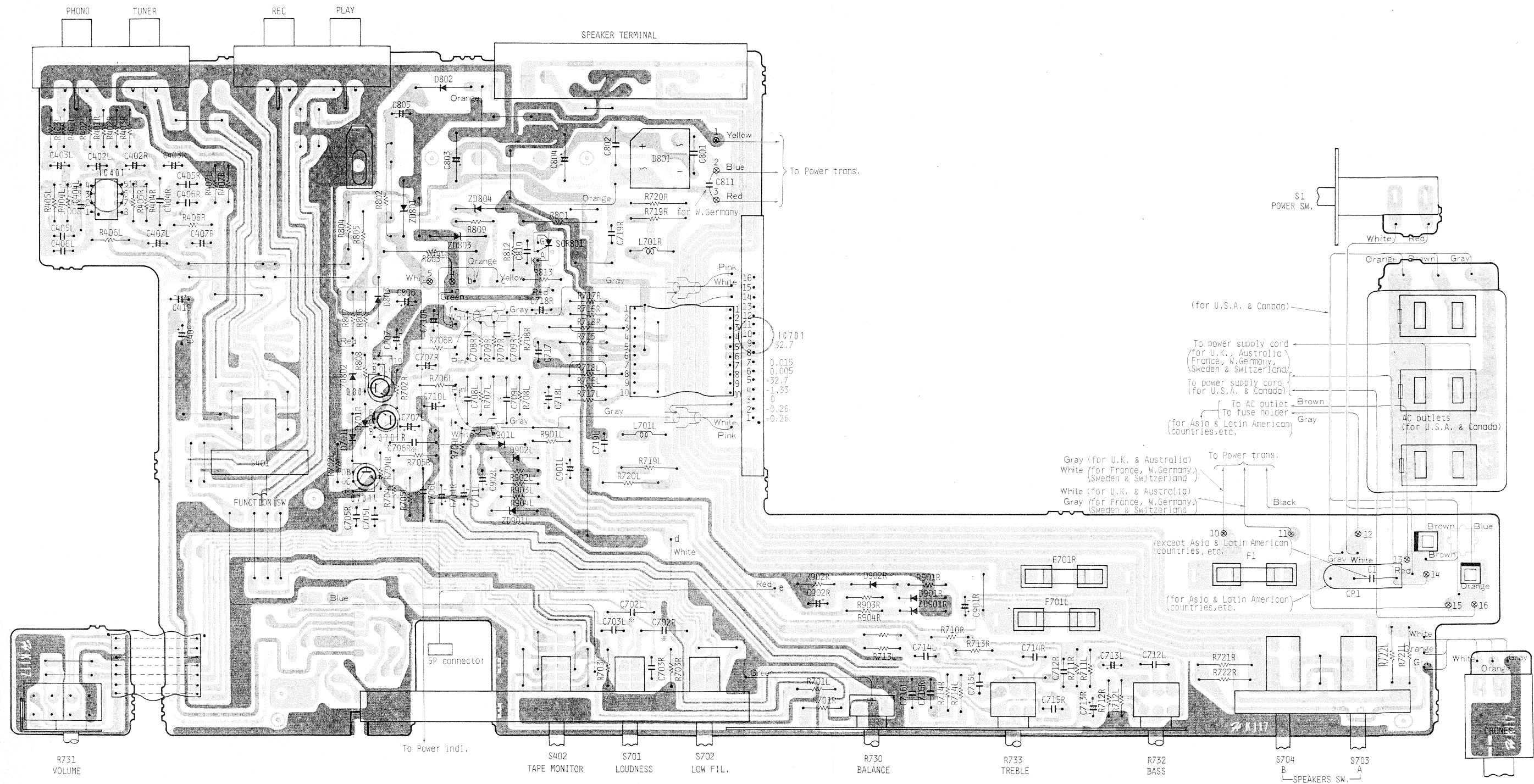
HA-1800



PRINTED WIRING BOARD·PRINTPLATTEN·PLAN DE BASE

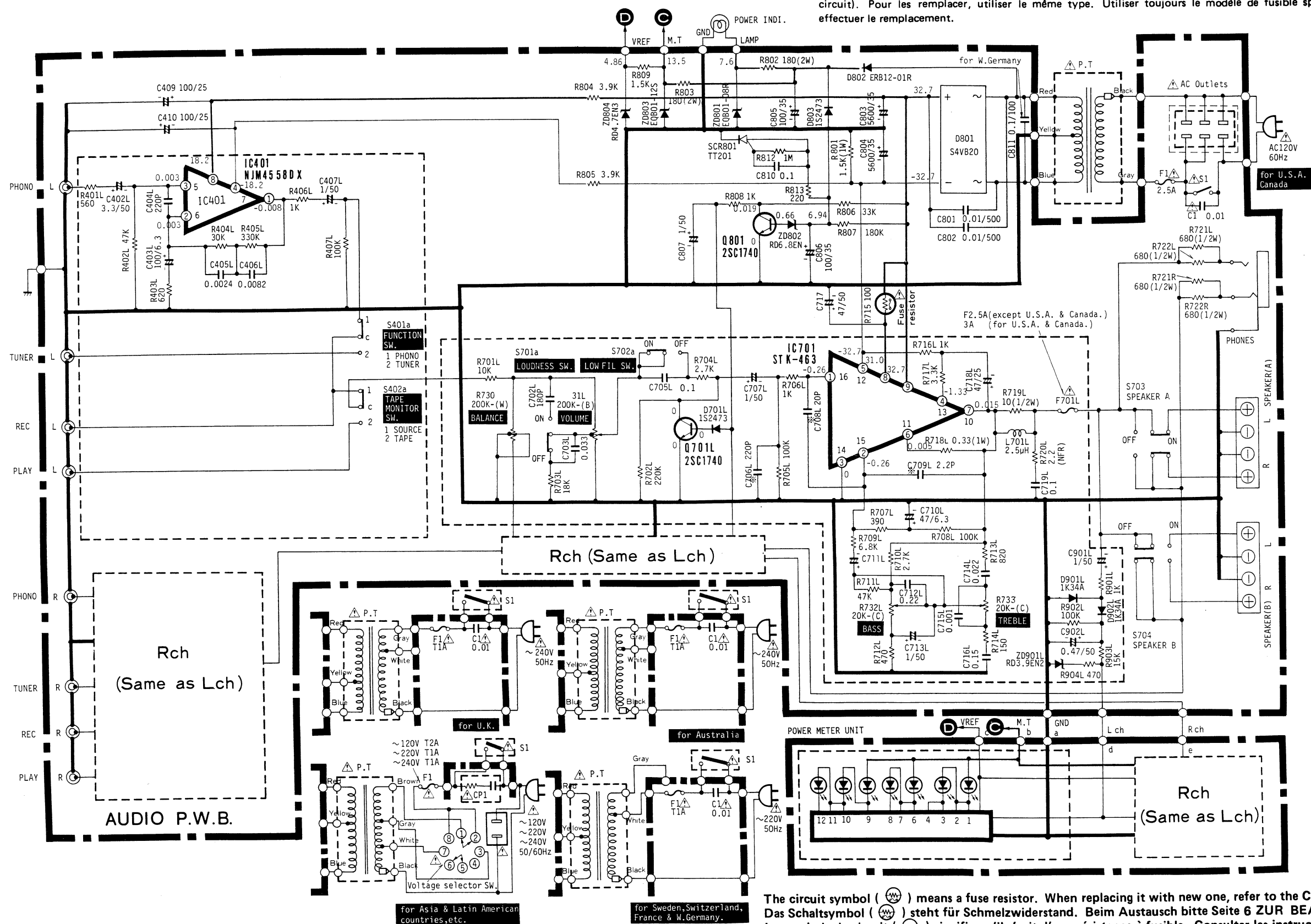
HA-2800

[ :+B,  :-B,  :Earth,  :Other]



CIRCUIT DIAGRAM · SCHALTPLAN · PLAN DE CIRCUIT

HA-2800



CAUTION: Fuse resistors are used to improve safety (to protect the circuit). When replacing them with new ones, be sure to use the designated type. Always use the designated fuse without fail.

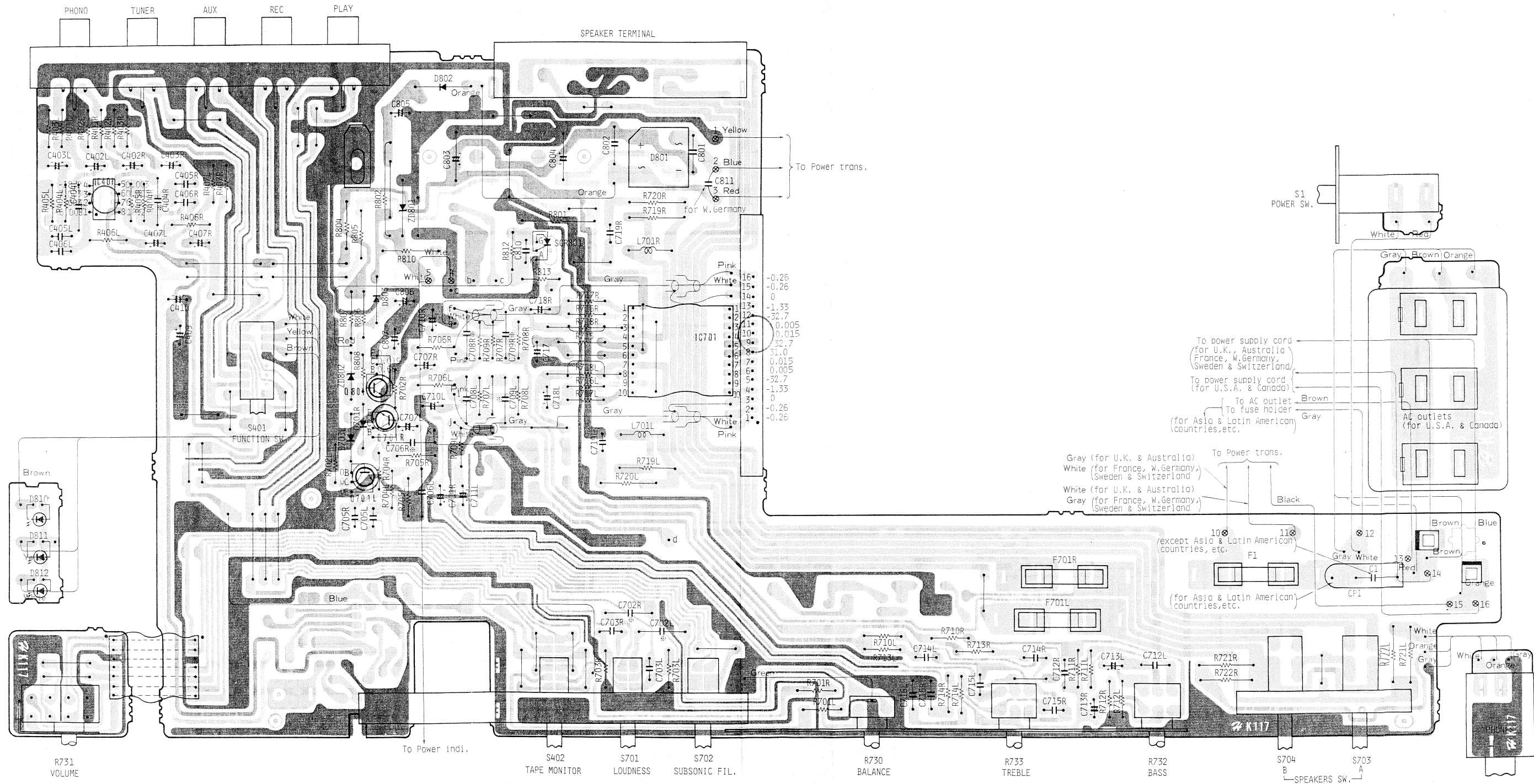
ZUR BEACHTUNG: Schmelzwiderstände sind zur Erhöhung der Sicherheit vor gesehen (zum Schutz der Schaltung). Bei Austausch bitte nur die vorgeschriebene Type benutzen. Vergewissern Sie sich, daß die richtige Type gewählt ist.

ATTENTION: Les résistance à fusible sont faites pour améliorer la sécurité de l'appareil (protection de circuit). Pour les remplacer, utiliser le même type. Utiliser toujours le modèle de fusible spécifié pour effectuer le remplacement.

The circuit symbol () means a fuse resistor. When replacing it with new one, refer to the CAUTION on page 6. Das Schaltsymbol () steht für Schmelzwiderstand. Beim Austausch bitte Seite 6 ZUR BEACHTUNG nachlesen. Le symbole de circuit () signifie qu'il s'agit d'une résistance à fusible. Consulter les instructions "ATTENTION" de la page 6 pour effectuer son remplacement.

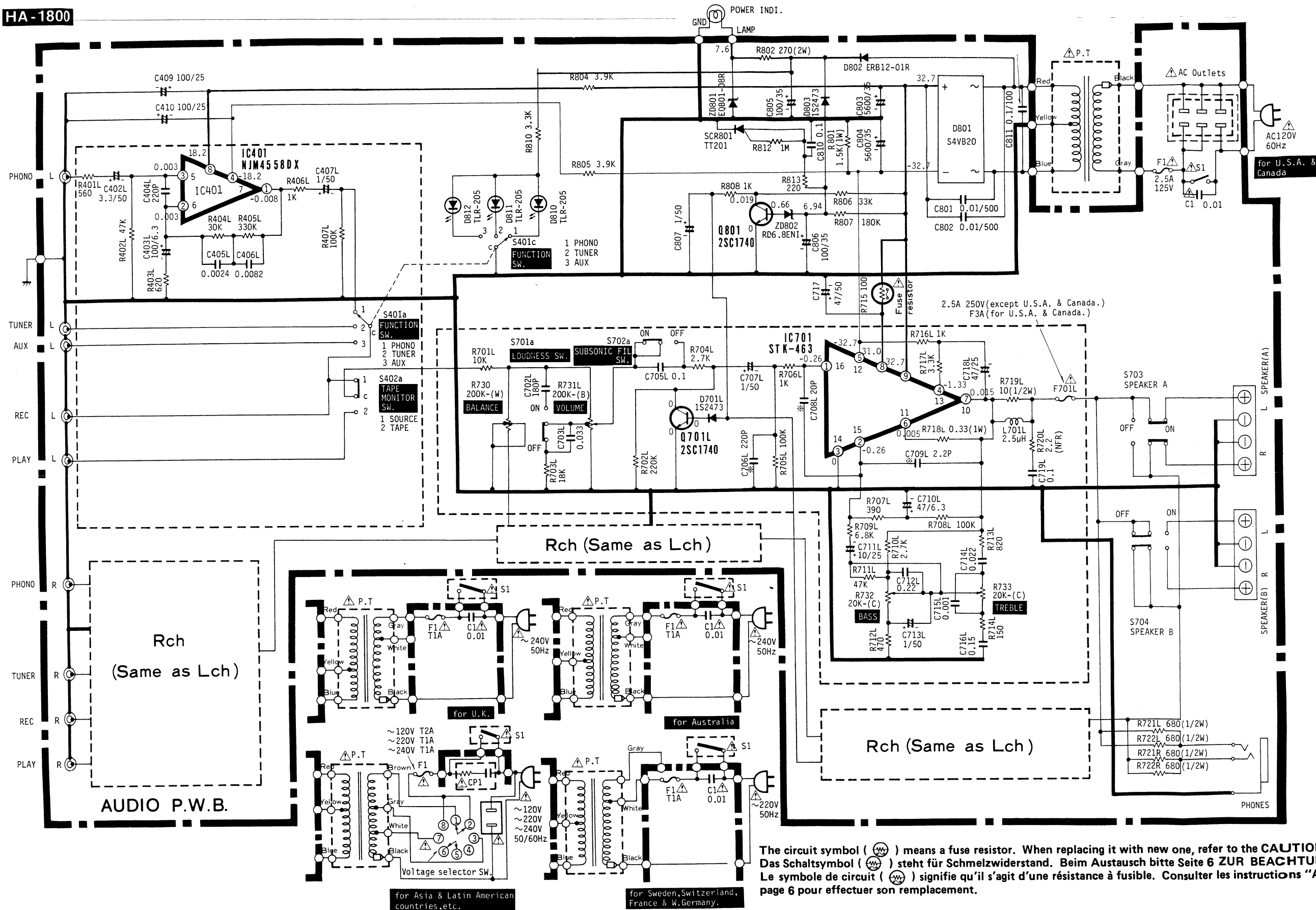
PRINTED WIRING BOARD·PRINTPLATTEN·PLAN DE BASE

HA-1800 [:+B, :-B, :Earth, :Other]



CIRCUIT DIAGRAM·SCHALTPLAN·PLAN DE CIRCUIT

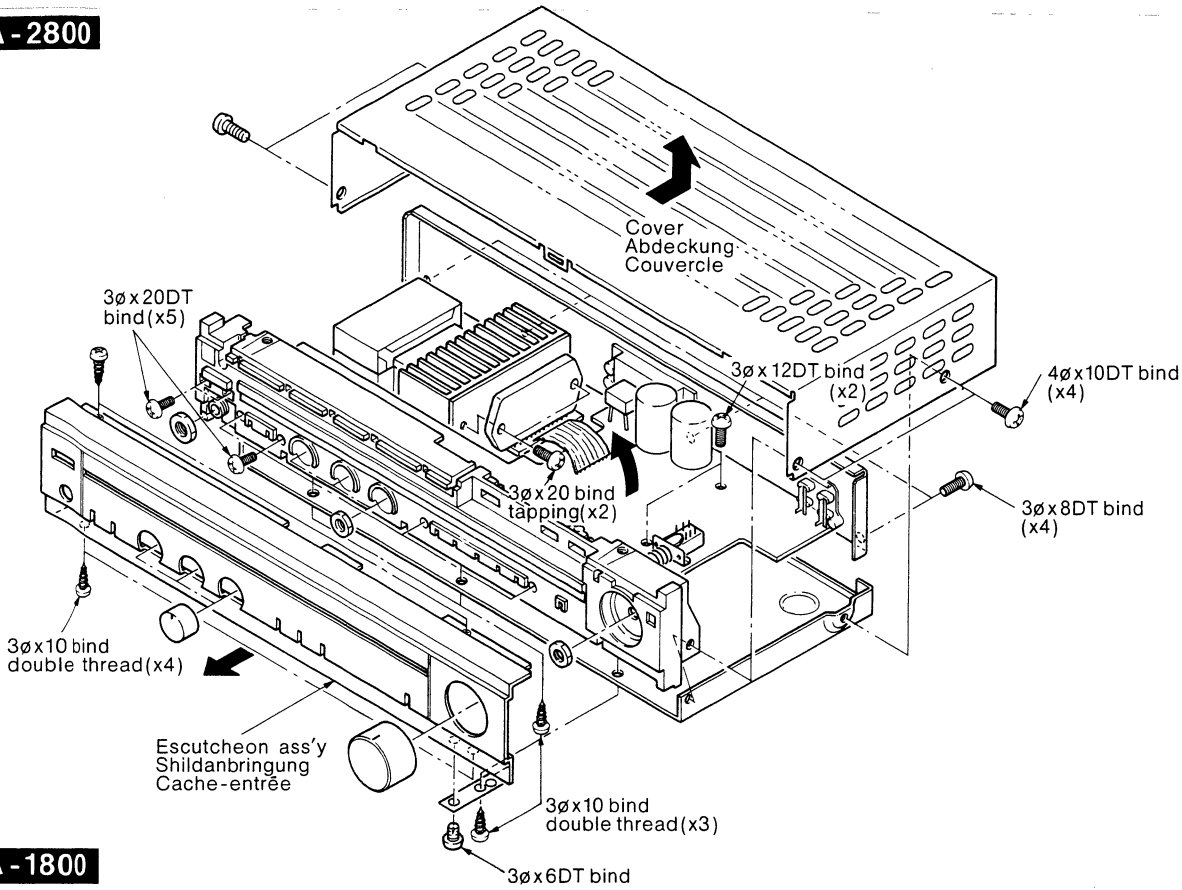
HA-1800



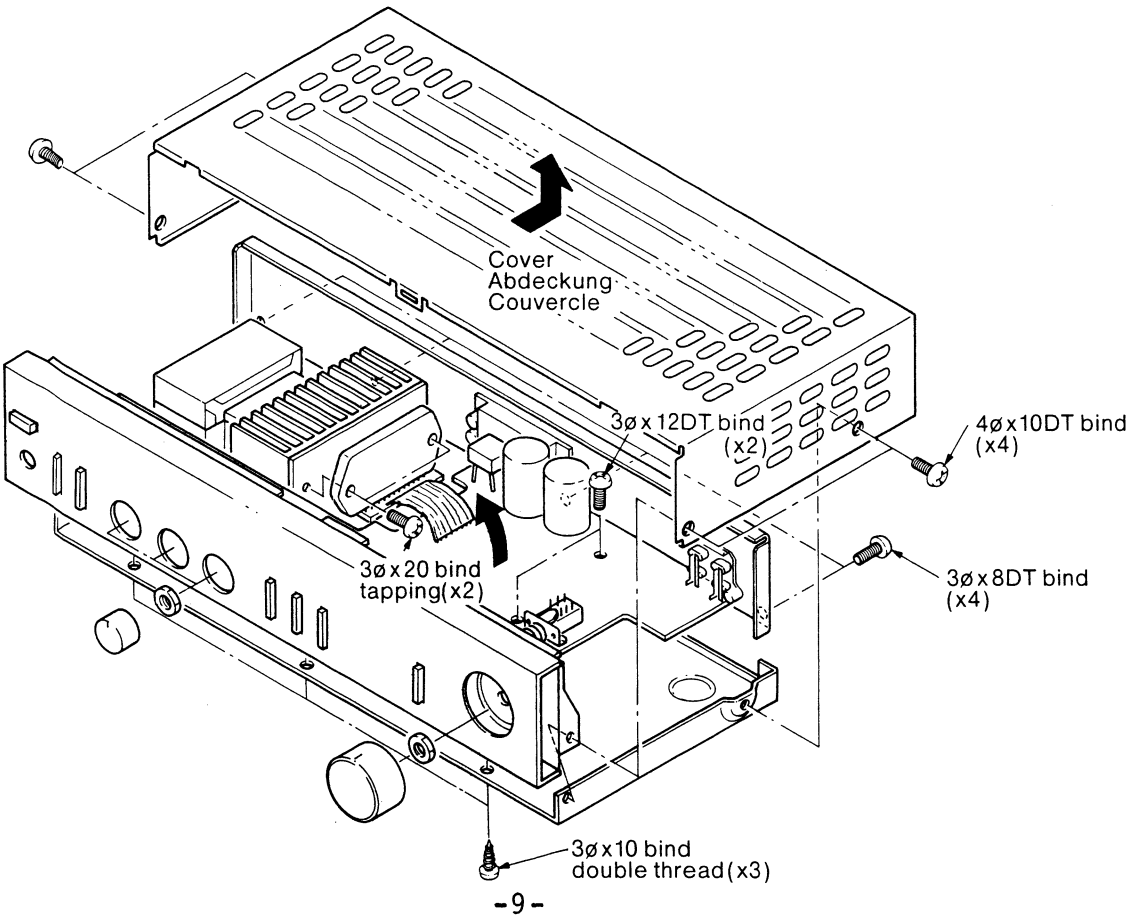
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DISASSEMBLY AND REPLACEMENT · ZERLEGUNG UND AUSTAUSCH ·
DEMONTAGE ET REMONTAGE

HA-2800



HA-1800



REPLACEMENT PARTS LIST · ERSATZTEILLISTE · TABLEAU DES PIECE
HA-2800

SYMBOL NO.	PART NO.	DESCRIPTION					SYMBOL NO.	PART NO.	DESCRIPTION				
CAPACITORS							R704LR	0129611	Carbon film	2.7kΩ	±5%	SRD1/8P	
C402LR	0252813K	Electrolytic	3.3μF		50V		R705LR	0129661	Carbon film	100kΩ	±5%	SRD1/8P	
C403LR	0252231K	Electrolytic	100μF		6.3V		R706LR	0129601	Carbon film	1kΩ	±5%	SRD1/8P	
C404LR	0240004	Cylindrical, ceramic	220pF	±10%	50V		R707LR	0129575	Carbon film	390Ω	±5%	SRD1/8P	
C405LR	0274223	Mylar, film	2400pF	±5%	50V		R708LR	0129661	Carbon film	100kΩ	±5%	SRD1/8P	
C406LR	0274236	Mylar, film	8200pF	±5%	50V		R709LR	0129621	Carbon film	6.8kΩ	±5%	SRD1/8P	
C407LR	0252811K	Electrolytic	1μF		50V		R710LR	0129611	Carbon film	2.7kΩ	±5%	SRD1/8P	
							R711LR	0129647	Carbon film	47kΩ	±5%	SRD1/8P	
C409	0252631K	Electrolytic	100μF		25V		R712LR	0129577	Carbon film	470Ω	±5%	SRD1/8P	
C410	0252631K	Electrolytic	100μF		25V		R713LR	0129583	Carbon film	820Ω	±5%	SRD1/8P	
							R714LR	0129565	Carbon film	150Ω	±5%	SRD1/8P	
C702LR	0240003	Cylindrical, ceramic	180pF	±10%	50V		△R715	0110621	Metal (fuse resistor)	100Ω	±5%	RN1/4B	
C703LR	0275014	Mylar, film	0.033μF	±10%	50V		R716LR	0129601	Carbon film	1kΩ	±5%	SRD1/8P	
							R717LR	0129613	Carbon film	3.3kΩ	±5%	SRD1/8P	
C705LR	0276011	Mylar, film	0.1μF	±10%	50V		R718LR	0119015	Metal	0.33Ω	±10%	RN1B	
C706LR	0240004	Cylindrical, ceramic	220pF	±10%	50V		R719LR	0134289	Composition	10Ω	±10%	RC1/2GF	
C707LR	0252811K	Electrolytic	1μF		50V		R720LR	0100609	Carbon film	2.2Ω	±5%	RN1/4B	
C708LR	0230019	Cylindrical, ceramic	20pF	±5%	50V		R721LR	0134371	Composition	680Ω	±10%	RC1/2GF	
C709LR	0230004	Cylindrical, ceramic	2.2pF	±10%	50V		R722LR	0134371	Composition	680Ω	±10%	RC1/2GF	
C710LR	0252225K	Electrolytic	47μF		6.3V								
C711LR	0252621K	Electrolytic	10μF		25V		R801	0119443	Metal oxide	1.5kΩ	±10%	RS1B	
C712LR	0276013	Mylar, film	0.22μF	±10%	50V		R802	0119524	Metal oxide	180Ω	±10%	RS2B	
C713LR	0252811K	Electrolytic	1μF		50V		R803	0119524	Metal oxide	180Ω	±10%	RS2B	
C714LR	0275013	Mylar, film	0.022μF	±10%	50V		R804	0129615	Carbon film	3.9kΩ	±5%	SRD1/8P	
C715LR	0274011	Mylar, film	1000pF	±10%	50V		R805	0129615	Carbon film	3.9kΩ	±5%	SRD1/8P	
C716LR	0276012	Mylar, film	0.15μF	±10%	50V		R806	0129643	Carbon film	33kΩ	±5%	SRD1/8P	
C717	0252825K	Electrolytic	47μF		50V		R807	0129667	Carbon film	180kΩ	±5%	SRD1/8P	
C718LR	0252625K	Electrolytic	47μF		25V		R808	0129601	Carbon film	1kΩ	±5%	SRD1/8P	
C719LR	0276011	Mylar, film	0.1μF	±10%	50V		R809	0129605	Carbon film	1.5kΩ	±5%	SRD1/8P	
C801	0245408	Ceramic, discal	0.01μF	±20%	500V		R812	0129701	Carbon film	1MΩ	±5%	SRD1/8P	
C802	0245408	Ceramic, discal	0.01μF	±20%	500V		R813	0129569	Carbon film	220Ω	±5%	SRD1/8P	
C803	0259946	Electrolytic	5600μF		35V								
C804	0259946	Electrolytic	5600μF		35V		R901LR	0129601	Carbon film	1kΩ	±5%	SRD1/8P	
C805	0252731K	Electrolytic	100μF		35V		R902LR	0129661	Carbon film	100kΩ	±5%	SRD1/8P	
C806	0252731K	Electrolytic	100μF		35V		R903LR	0129635	Carbon film	1.5kΩ	±5%	SRD1/8P	
C807	0252811K	Electrolytic	1μF		50V		R904LR	0129577	Carbon film	470Ω	±5%	SRD1/8P	
C810	0276011	Mylar, film	0.1μF	±10%	50V		ICs & TRANSISTORS						
C811	0276511	Mylar, film (for W. Germany)	0.1μF	±10%	100V		IC401	2368041	NJM4558DX				
							IC701	2368841	STK463				
C901LR	0252811K	Electrolytic	1μF		50V		Q701LR	2328656	2SC1740				
C902LR	0252805K	Electrolytic	0.47μF		50V		Q801	2328656	2SC1740				
△C 1	0243901	Ceramic, discal (except U.S.A, Canada, Asia & Latin American countries, etc)	0.01μF	+100 -0 %	400V		DIODES						
△C 1	0243899	Ceramic, discal (for U.S.A. & Canada)	0.01μF	+100 -0 %	125V		D701LR	2337601	1S2473				
RESISTORS							D801	2337461	S4VB20				
R401LR	0129579	Carbon film	560Ω	±5%	SRD1/8P		D802	2337762	ERB12-01R				
R402LR	0129647	Carbon film	47kΩ	±5%	SRD1/8P		D803	2337601	1S2473				
R403LR	0129580	Carbon film	620Ω	±5%	SRD1/8P		D901LR	2337922	1K34A				
R404LR	0129642	Carbon film	30kΩ	±5%	SRD1/8P		D902LR	2337922	1K34A				
R405LR	0129673	Carbon film	330kΩ	±5%	SRD1/8P		SCR801	2338861	TT201-90				
R406LR	0129601	Carbon film	1kΩ	±5%	SRD1/8P								
R407LR	0129661	Carbon film	100kΩ	±5%	SRD1/8P		ZD801	2337773	EQB01-08R				
							ZD802	2338605	RD6. 8EN1				
R701LR	0129631	Carbon film	10kΩ	±5%	SRD1/8P		ZD803	2337784	EQB01-12S				
R702LR	0129669	Carbon film	220kΩ	±5%	SRD1/8P		ZD804	2338595	RD 4.7EN3				
R703LR	0129637	Carbon film	18kΩ	±5%	SRD1/8P		ZD901LR	2338589	RD 3.9EN2				

HA-1800

SYMBOL NO.	PART NO.	DESCRIPTION
VARIABLE RESISTORS		
R730	0151846	200kΩ -(W) (BALANCE)
R731	0151857	200kΩ -(B) (VOLUME)
R732	0151807	20kΩ -(C) (BASS)
R733	0151807	20kΩ -(C) (TREBLE)
COILS & TRANSFORMERS		
L701LR	2227311	Audio trap coil—2.5μH
MISCELLANEOUS		
△ CP1	0269014	Spark killer (for Asia & Latin American countries, etc.)
	2657713	AC outlet (for U.S.A. & Canada)
△ S1	2639512	Power switch (for U.S.A. & Canada)
△ S1	2639513	Power switch (except U.S.A. & Canada)
△ F1	2727564	Fuse—2.5A ST6 (for U.S.A. & Canada)
△ F1	2727191	Fuse—1A 250V (except U.S.A. & Canada)
△ F701 LR	2727223	Fuse—3A (for U.S.A. & Canada)
△ F701 LR	2727335	Fuse—2.5A (except U.S.A. & Canada)
	2727161	Lamp holder (for U.S.A. & Canada)
	2727602	Fuse clip (except U.S.A. & Canada)
	2677611	4P US pin jack
	2677641	Headphone jack
	2688281	Speaker terminal (8P)
S401	2638232	Push switch (FUNCTION)
S402	2638674	Push switch (TAPE MONITOR)
S701	2638674	Push switch (LOUDNESS)
S702	2638674	Push switch (LOW FIL)
S703,704	2638621	Push switch (SPEAKERS) (except U.S.A. & Canada)
S703,704	2638622	Push switch (SPEAKERS) (for U.S.A. & Canada)
	2667545	5P cord with housing
for FINAL ASSEMBLY		
	3248082	Escutcheon
	3289991	Knob ass'y (VOLUME)
	3290861	Knob (BASS, TREBLE, BALANCE)
	4430321	Cover
	4574603	3φx10 bind double head screw
	4567451	3φx6DT bind screw
	4567463	4φx10DT bind screw

SYMBOL NO.	PART NO.	DESCRIPTION
for DIAL MECHANISM ASSEMBLY		
	3943091	Sub panel
	3932	Push knob (POWER)
	3942961	Push knob (SPEAKERS Others)
	4098511	Push knob ass'y (FUNCTION)
	3927411	Leg
	2369001	LED meter unit
	2767629	Lamp with lead wire 8V, 50mA
	4567422	4φx8DT bind screw
	4567413	3φx10DT bind screw
	4567454	3φx12DT bind screw
	4572313	3φx20 bind tapping screw
	4567411	3φx6DT bind screw
	4784106	3φx10 bind tapping screw
	4567432	3φx8DT bind screw
	45819 2	3φx10 tapping flat head screw (for U.S.A. & Canada)
	4567417	3φx20DT bind screw
		U.S.A. & Canada
		W. Germany, France, Switzerland & Sweden
		Australia
		U.K.
		Asia & Latin American countries, etc.
△	2247541	Power transformer
△	2247542	Power transformer
△	2247543	Power transformer
△	2749471	Power supply cord
△	2748752	Power supply cord
△	2749202	Power supply cord
△	2749622	Power supply cord
△	0043793	Bushing (for power supply cord)
△	3913006	Bushing (for power supply cord)
△	2618051	Voltage selector SW
△	2727121	Fuse holder
△	2727191	Fuse—T1A, 250V
△	2657721	AC Outlet
△	2658361	E socket adaptor } (for
△	2727193	Fuse—T2A, 250V } ACCESSORIES

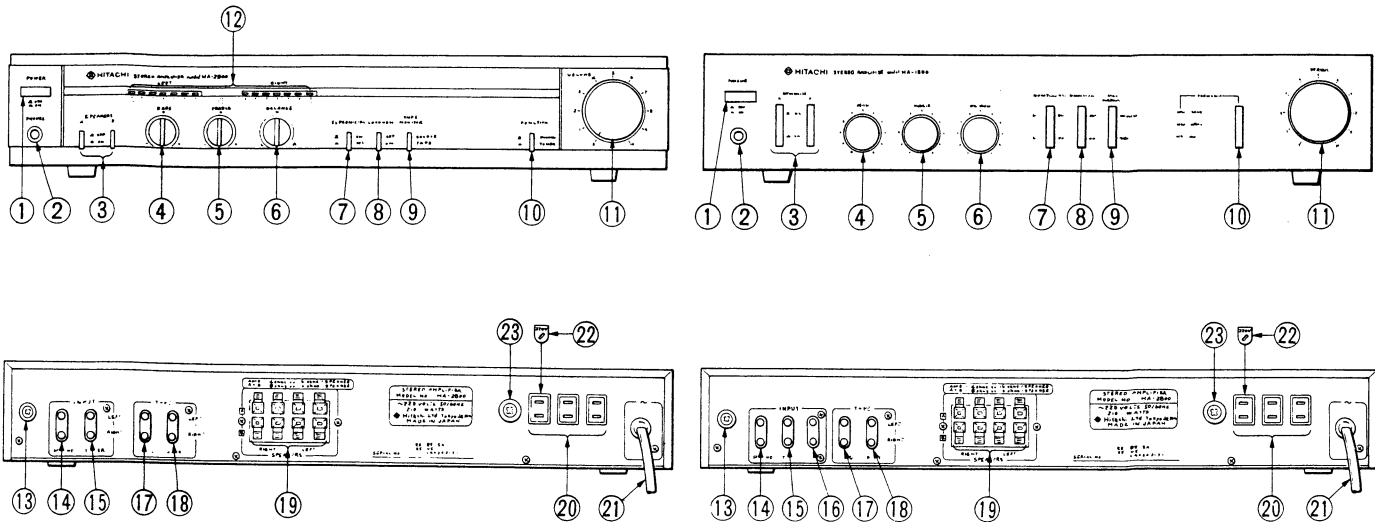
SYMBOL NO.	PART NO.	DESCRIPTION
CAPACITORS		
C402LR	0252813K	Electrolytic 3.3μF 50V
C403LR	0252231K	Electrolytic 100μF 6.3V
C404LR	0240004	Cylindrical, ceramic 220pF ±10% 50V
C405LR	0274223	Mylar, film 2400pF ±5% 50V
C406LR	0274236	Mylar, film 8200pF ±5% 50V
C407LR	0252811K	Electrolytic 1μF 50V
C409	0252631K	Electrolytic 100μF 25V
C410	0252631K	Electrolytic 100μF 25V
C702LR	0240003	Cylindrical, ceramic 180pF ±10% 50V
C703LR	0275014	Mylar, film 0.033μF ±10% 50V
C705LR	0276011	Mylar, film 0.1μF ±10% 50V
C706LR	0240004	Cylindrical, ceramic 220pF ±10% 50V
C707LR	0252811K	Electrolytic 1μF 50V
C708LR	0230019	Cylindrical, ceramic 20pF ±5% 50V
C709LR	0230004	Cylindrical, ceramic 2.2pF ±10% 50V
C710LR	0252225K	Electrolytic 47μF 6.3V
C711LR	0252621K	Electrolytic 10μF 25V
C712LR	0276013	Mylar, film 0.22μF ±10% 50V
C713LR	0252811K	Electrolytic 1μF 50V
C714LR	0275013	Mylar, film 0.022μF ±10% 50V
C715LR	0274011	Mylar, film 1000pF ±10% 50V
C716LR	0276012	Mylar, film 0.15μF ±10% 50V
C717	0252825K	Electrolytic 47μF 50V
C718LR	0252625K	Electrolytic 47μF 25V
C719LR	0276011	Mylar, film 0.1μF ±10% 50V
C801	0245408	Ceramic, discal 0.01μF 500V
C802	0245408	Ceramic, discal 0.01μF 500V
C803	0259946	Electrolytic 5600μF 35V
C804	0259946	Electrolytic 5600μF 35V
C805	0252731K	Electrolytic 100μF 35V
C806	0252731K	Electrolytic 100μF 35V
C807	0252811K	Electrolytic 1μF 50V
C810	0276011	Mylar, film 0.1μF ±10% 50V
C811	0276511	Mylar, film 0.1μF ±10% 100V
△ C 1	0243899	Ceramic, discal 0.01μF +100 -0 % 125V
△ C 1	0243901	Ceramic, discal 0.01μF +100 -0 % 400V
RESISTORS		
R401LR	0129579	Carbon film 560Ω ±5% SRD1/8P
R402LR	0129647	Carbon film 47kΩ ±5% SRD1/8P
R403LR	0129580	Carbon film 620Ω ±5% SRD1/8P
R404LR	0129642	Carbon film 30kΩ ±5% SRD1/8P
R405LR	0129673	Carbon film 330kΩ ±5% SRD1/8P
R406LR	0129601	Carbon film 1kΩ ±5% SRD1/8P
R407LR	0129661	Carbon film 100kΩ ±5% SRD1/8P
R701LR	0129631	Carbon film 10kΩ ±5% SRD1/8P
R702LR	0129669	Carbon film 220kΩ ±5% SRD1/8P
R703LR	0129637	Carbon film 18kΩ ±5% SRD1/8P
R704LR	0129611	Carbon film 2.7kΩ ±5% SRD1/8P
R705LR	0129661	Carbon film 100kΩ ±5% SRD1/8P
R706LR	0129601	Carbon film 1kΩ ±5% SRD1/8P

SYMBOL NO.	PART NO.	DESCRIPTION
R707LR	0129575	Carbon film 390Ω ±5% SRD1/8P
R708LR	0129661	Carbon film 100kΩ ±5% SRD1/8P
R709LR	0129621	Carbon film 6.8kΩ ±5% SRD1/8P
R710LR	0129611	Carbon film 2.7kΩ ±5% SRD1/8P
R711LR	0129647	Carbon film 47kΩ ±5% SRD1/8P
R712LR	0129577	Carbon film 470Ω ±5% SRD1/8P
R713LR	0129583	Carbon film 820Ω ±5% SRD1/8P
R714LR	0129565	Carbon film 150Ω ±5% SRD1/8P
△ R715LR	0110621	Metal (fuse resistor) 100Ω ±5% RN1/4B
R716LR	0129601	Carbon film 1kΩ ±5% SRD1/8P
R717LR	0129613	Carbon film 3.3kΩ ±5% SRD1/8P
R718LR	0119015	Metal 0.33Ω ±10% RN1B
R719LR	0134289	Composition 10Ω ±10% RC1/2GF
R720LR	0100609	Metal 2.2Ω ±5% RN1/4B
R721LR	0134371	Composition 680Ω ±10% RC1/2GF
R722LR	0134371	Composition 680Ω ±10% RC1/2GF
R801	0119443	Metal oxide 1.5kΩ ±10% RS1B
R802	0119526	Metal oxide 270Ω ±10% RS2B
R804	0129615	Carbon film 3.9kΩ ±5% SRD1/8P
R805	0129615	Carbon film 3.9kΩ ±5% SRD1/8P
R806	0129643	Carbon film 33kΩ ±5% SRD1/8P
R807	0129667	Carbon film 180kΩ ±5% SRD1/8P
R808	0129601	Carbon film 1kΩ ±5% SRD1/8P
R810	0129613	Carbon film 3.3kΩ ±5% SRD1/8P
R812	0129701	Carbon film 1MΩ ±5% SRD1/8P
R813	0129569	Carbon film 220Ω ±5% SRD1/8P
ICs & TRANSISTORS		
IC401	2368041	NJM4558DX
IC701	2368841	STK463
Q701LR	2328656	2SC1740 (E)
Q801	2328656	2SC1740 (E)
DIODES		
D701LR	2337601	IS2473
D801	2337461	S4VB20
D802	2337762	ERB12-01R
ZD801	2337773	EQB01-08R
ZD802	2338605	RD6. 8EN1
D803	2337601	IS2473
SCR801	2338861	TT201-90
D810	2337731	LED TLR205
D811	2337731	LED TLR205
D812	2337731	LED TLR205
VARIABLE RESISTORS		
R730	0151850	200kΩ -(W) (BALANCE)
R731	0151857	200kΩ -(B) (VOLUME)
R732	0151809	20kΩ -(C) (BASS)
R733	0151809	20kΩ -(C) (TREBLE)
COILS		
L701LR	2227311	Audio trap coil —2.5μH

SYMBOL NO.	PART NO.	DESCRIPTION	SYMBOL NO.	PART NO.	DESCRIPTION
MISCELLANEOUS			for REAR PLATE ASSEMBLY		
△ CPI	0269014	Spark killer (for Asia & Latin American countries, etc)		4567432	3φx8DT bind screw (for Asia & Latin American countries, etc)
△ S1	2639512	Power Switch (for U.S.A. & Canada)			
△ S1	2639513	Power Switch (except U.S.A. & Canada)			
△	2657713	AC Outlet (for U.S.A. & Canada)			
△ F1	2727564	Fuse 2.5A (for U.S.A. & Canada)			
△ F1	2727191	Fuse T1A 250V (except U.S.A. Canada, Asia & Latin American countries, etc)			
△ F701LR	2727223	Fuse 3A (for U.S.A. & Canada)			
△ F701LR	2727335	Fuse 2.5A(except U.S.A. & Canada)			
	2677612	6P US pin jack			
	2677611	4P US pin jack			
	2677641	Headphone jack			
	2688281	Speaker terminal (8P)			
S703,704	2638622	Push switch (for U.S.A. & Canada)			
S703,704	2638621	Push switch (except U.S.A. & Canada)			
S401	2639551	Rotary switch			
S402,701,702	2639541	Push switch			
	4567411	3φx6DT bind screw			
for FINAL ASSEMBLY					
	3290821	Knob ass'y (VOLUME)			
	3290611	Knob, (BASS, TREBLE, BALANCE)			
	4430321	Cover			
	4567463	4φx10DT bind screw			
for DIAL MECHANISM ASSEMBLY					
	4098861	Front panel ass'y			
	3290851	Push knob (SPEAKERS A,B, others)			
	3944571	Push adaptor			
	3932291	Knob (POWER)			
	3927411	Leg.			
	2767629	Lamp with lead wire 8V, 50mA			
	4567422	4φx8DT bind screw			
	4567413	3φx10DT bind screw			
	4567454	3φx12DT bind screw			
	4572313	3φx20 bind tapping screw			
	4567411	3φx6 DT bind screw			
	4784106	3φx10 bind tapping screw			
	4567432	3φx8 DT bind screw			
	4581982	3φx10 tapping flat head screw (for U.S.A. & Canada)			

SYMBOL NO.	PART NO.	DESCRIPTION	U.S.A. & Canada	W. Germany & France	U.K.	Australia	Switzerland & Sweden	Asia & Latin American countries, etc.
△	2749471	Power supply cord	○					
△	2748752	Power supply cord		○				○
△	2749202	Power supply cord			○			
△	2749622	Power supply cord				○		
△	0043793	Bushing (for power supply cord)	○					
△	3913006	Bushing (for power supply cord)		○	○	○	○	○
△	2247541	Power transformer	○					
△	2247542	Power transformer			○	○	○	
△	2247543	Power transformer						○
△	2618051	Voltage selector switch						○
△	2727121	Fuse holder						○
△	2727191	Fuse -T1A 250V						○
△	2657281	AC outlet						○
△	2658361	E socket adaptor						○
△	2727193	Fuse-T2A, 250V						○

FRONT AND REAR PANEL
VORDERE UND HINTERE BEDIENTUNGSTAFEL
PANNEAUX AVANT ET ARRIERE



(HA-2800)

(HA-1800)

- 1 POWER switch
- 2 PHONES jack
- 3 SPEAKERS switches
- 4 BASS control
- 5 TREBLE control
- 6 BALANCE control
- 7 SUBSONIC FILTER switch
- 8 LOUDNESS switch
- 9 TAPE monitor switch
- 10 FUNCTION switches
- 11 VOLUME control
- 12 Power level indicator (HA-2800)
- 13 Ground terminal (GND)
- 14 PHONO INPUT terminals
- 15 TUNER INPUT terminals
- 16 AUX INPUT terminals (HA-1800)
- 17 TAPE REC terminals
- 18 TAPE PLAY terminals
- 19 SPEAKERS terminals
- 20 AC outlet
(3 outlets for U.S.A. & Canada sets,
1 outlet for Asia & Latin American
countries sets)
- 21 Power supply cord
(for Asia and Latin American countries)
- 22 VOLTAGE SELECTOR
(for Asia and Latin American countries)
- 23 FUSE holder
(for Asia and Latin American countries)

- 1 Netzschalter (POWER)
- 2 Kopfhörer-Buchse (PHONES)
- 3 Lautsprecherschalter bass (SPEAKERS)
- 4 BASS-Regler
- 5 Höhenregler (TREBLE)
- 6 BALANCE-Regler
- 7 SUBSONIC-FILTER-Schalter
- 8 Schalter für gehörrichtige Klangkorrektur
(LOUDNESS)
- 9 Schalter für Hinterbandkontrolle (TAPE)
- 10 Funktionsschalter (FUNCTION)
- 11 Lautstärkereglern (VOLUME)
- 12 Leistungspegelanzeige (HA-2800)
- 13 Erdung (GND)
- 14 Plattenspieler-Eingangsanschluß
(PHONO INPUT)
- 15 Tuner-Eingangsanschluß (TUNER INPUT)
- 16 Zusätzliche Eingangsanschlüsse
(AUX INPUT) (HA-1800)
- 17 Aufnahme-Anschlüsse für Tonbandgerät
(TAPE REC)
- 18 Wiedergabe-Anschlüsse für Tonband-
gerät (TAPE PLAY)
- 19 Lautsprecher-Klemmen (SPEAKERS)
- 20 Kaltgeräte-Steckdose (drei Steckdosen
bei für USA und Kanada bestimmten
Modellen; eine Steckdose bei für Asien
und Lateinamerika bestimmten Model-
len)
- 21 Netzkabel
- 22 Netzspannungswähler
(VOLTAGE SELECTOR)
(für Asien und Lateinamerika)
- 23 Halter für Sicherung (FUSE)
(für Asien und Lateinamerika)

- 1 Interrupteur d'alimentation (POWER)
- 2 Prise de casque (PHONES)
- 3 Commutateur d'enceintes (SPEAKERS)
- 4 Commande des graves (BASS)
- 5 Commande des aigus (TREBLE)
- 6 Commande d'équilibre (BALANCE)
- 7 Commutateur de filtre subsonique
(SUBSONIC FILTER)
- 8 Commutateur de correction physio-
logique (LOUDNESS)
- 9 Commutateur de contrôle de bande
(TAPE)
- 10 Commutateur de fonction
(FUNCTION)
- 11 Commande de VOLUME
- 12 Indicateur de niveau de puissance
(HA-2800)
- 13 Borne de terre (GND)
- 14 Bornes d'entrée phono (PHONO INPUT)
- 15 Bornes d'entrée tuner (TUNER INPUT)
- 16 Bornes d'entrée auxiliaire
(AUX INPUT) (HA-1800)
- 17 Bornes d'enregistrement de bande
(TAPE REC)
- 18 Bornes de reproduction de bande
(TAPE PLAY)
- 19 Bornes d'enceintes (SPEAKERS)
- 20 Prises C.A.
(3 prises d'alimentation sur les modèles
destinés aux Etats-Unis et au Canada, 1
prise d'alimentation pour les pays d'Asie
et d'Amérique Latine)
- 21 Cordon d'alimentation C.A.
- 22 Sélecteur de tension (VOLTAGE
SELECTOR) (pour l'Asie et les pays
d'Amérique Latine)
- 23 Support de fusible (FUSE)
(pour l'Asie et les pays d'Amérique
Latine)